S25P Quick Reference

Version 2.5.2.0 **October 2007** **101-00244-02**

FORCE10™

Copyright 2007 Force10 Networks

All rights reserved. Printed in the USA, October 2007.

Force10 Networks reserves the right to change, modify, revise this publication without notice.

Trademarks

Copyright 2007 by Force10 Networks, Inc. All rights reserved. Force10 Networks® and E-Series® are registered trademarks of Force10 Networks, Inc. Force10, the Force10 logo, E1200, E600, E300, EtherScale, FTOS, S-Series, SFTOS, and TeraScale are trademarks of Force10 Networks, Inc. All other brand and product names are registered trademarks or trademarks of their respective holders.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, Force10 Networks reserves the right to make changes to products described in this document without notice.

USA Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance to the instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures necessary to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Force10 Networks is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications in the equipment. Unauthorized changes or modification could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communication Statement

The digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Attention: Le present appareil numerique n' emet pas de perturbations radioelectriques depassant les normes applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur les interferences radioelectriques etabli par le ministere des Communications du Canada.

European Union EMC Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Force 10 Networks can not accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of this product, including the fitting of non-Force10 option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/ European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Warning: This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case, the user may be required to take appropriate measures.

VCCI Compliance for Class A Equipment (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.\

Danger: AC Power cords are for use with Force10 Networks equipment only, do not use Force10 Networks AC Power cords with any unauthorized hardware.

本製品に同梱いたしております電源コードセットは、本製品専用です。本電源コードセットは、本製品以外の製品ならびに他の用途でご使用いただくことは出来ません。製品本体には同梱された電源コードセットを使用し、他製品の電源コードセットを使用しないで下さい。

Feedback on Documentation?
Send email to techpubs@force10networks.com

Contents

Overview 4
Contents of the S-Series Documentation CD-ROM 5
Installing the Hardware 6
- Component Overview 6
- Inserting 10-Gigabit and Stacking Modules (optional) 6
- Attaching the S25P to the Rack 8
- Connecting Stacking Ports (optional) 9
- Supplying Power 10
- S25P-DC 10
- Installing SFP Transceivers (optional) 11
- Installing XFP Transceivers (optional) 11
- Connecting to the Console Port 12

Basic Software Configuration 12
- Creating a User and Password 13
- Setting the Enable Password 13
- Enabling Ports 13
- Setting the Management IP Address 14
- Enabling Telnet to the Switch 14
- Managing a Stack of S-Series Switches 14
- Installing New Software 15
- Creating a Simple Configuration using VLANs and STP 15
- Enabling Spanning Tree Protocol 16

Notable Differences between FTOS and SFTOS 16
- Interface Nomenclature 17

The iSupport Website 18

Overview

Thank you for purchasing a Force10 Networks switch!

This *S25P Quick Reference* document is printed and included in the S25P shipping box to provide you with a quick way to access basic installation and configuration instructions and to tell you how to get more information.

In addition to the S25P with its SFTOS operating system loaded in its default configuration, the shipping box also contains two AC power cords, a DB9-to-RJ45 connector, and a small bag with rack-mounting screws, plastic feet for table-top mounting, and the *S-Series Documentation* CD-ROM (hereafter simply referred to as the "S-Series CD-ROM"). Other purchased components are shipped separately.

The hardware installation section (Installing the Hardware on page 6) in this guide contains a subset of the information in *Installing the S25P System*, a book stored as a PDF both on the S-Series CD-ROM and at the iSupport website.

The software configuration section here (see Basic Software Configuration on page 12) contains a subset of the configuration information in the *SFTOS Configuration Guide*, which is also on the S-Series CD-ROM and at the iSupport website.

In fact, all of the S-Series documentation that is on the S-Series CD-ROM is also available on the iSupport website.

For more information about the S-Series CD-ROM, see the next section, Contents of the S-Series Documentation CD-ROM on page 5.

For more information about the iSupport website (login required), see The iSupport Website on page 18.

Note: This *S25P Quick Reference* is specific to SFTOS Version 2.5.1 for the S25P.

Contents of the S-Series Documentation CD-ROM

The S-Series Documentation CD-ROM launches a Web page from the CD-ROM containing the links described in the following sections:

Force10 Literature: This is a link to the Force10 Literature folder on the CD-ROM. It contains links to data sheets for all Force10 products.

***Installing S50N and S50V Systems*:** This book contains details of installation options for the S50N (including S50N-DC) and S50V models.

***S50N and S50V Quick Reference for SFTOS 2.5.2*:** This is a PDF version of the book in the shipping box.

***Installing the S50 System*:** This book contains details of installation options for the S50 model.

***S50 Quick Reference for SFTOS 2.5.1*:** This is a PDF version of the book that is included in the S50 shipping box.

Installing the S25P System: This book contains details of installation options for the S25P model.

S25P Quick Reference for SFTOS 2.5.1.0: This book is a PDF version of this book, which is included in the S25P shipping box.

***SFTOS Command Reference*:** This book contains syntax statements for all SFTOS commands in both the Layer 2 and Layer 3 packages.

***SFTOS Configuration Guide*:** This book is designed to help you perform the most common configuration tasks, with examples of the most commonly used commands.

MIBs: This is a link to a folder on the CD-ROM containing the S-Series MIBs, updated for SFTOS 2.5.2.

Secure Communications (SSH/SSL/HTTPS): This link opens an HTML page containing a link to the *S-Series Secure Management* application note on the CD, describing how to enable secure communications through SSH, SSL, and HTTP. The page also contains links to folders on the CD-ROM containing example keys and shell scripts that you can use to generate your own SSH keys and SSL certificates.

The **Training Material** link on the CD-ROM home page is to a folder on the CD-ROM containing sets of slides, in PDF format, that are used in the S-Series training, updated for SFTOS 2.5.2.

Note: The SFTOS software and the S-Series Release Notes, which had been on previous versions of the S-Series CD-ROM, are no longer on the CD-ROM. The iSupport website of Force10 contains the most recent software and documents. For details, see The iSupport Website on page 19.
Note: Documentation for the S2410 models is on the S2410 Documentation CD-ROM.

Installing the Hardware

Danger: To prevent electrical shock, make sure the S25P is grounded properly. If you do not ground your equipment correctly, excessive emissions may result.

To install the S25P system, Force10 Networks recommends that you complete the installation procedures in the order presented below, before attaching a power source:

- Insert 10-Gigabit and Stacking Modules (optional). See Inserting 10-Gigabit and Stacking Modules (optional) on page 6.
- Attach the S25P to the Rack. See Attaching the S25P to the Rack on page 8.
- Connect Stacking Ports (optional). See Connecting Stacking Ports (optional) on page 9.
- Connect to the Console Port. See Connecting to the Console Port on page 12.
- Connect Ethernet Ports. See Enabling Ports on page 13. .

Warning: As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system. Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and its components.
Warning: Before starting the installation, be sure that the installation conditions conform to those specified in *Installing the S25P System*.

Component Overview

The following sections in this *S25P Quick Reference* contain basic information on several optional modules. For more on the components of the S25P, see *Installing the S25P System*, on the S-Series CD-ROM.

To manage the switch, you first access the S25P through its console port (see Connecting to the Console Port on page 12), where you use the SFTOS Command Line Interface (CLI) to enable ports (see Enabling Ports on page 13.) All ports are in the management VLAN by default, so you can access the CLI through any active ports (see Basic Software Configuration on page 12.)

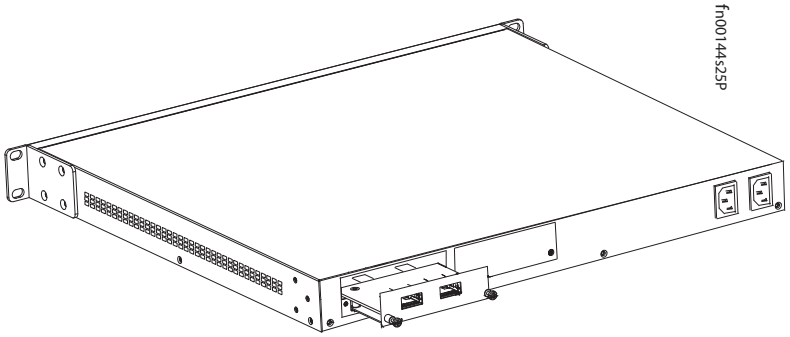
Inserting 10-Gigabit and Stacking Modules (optional)

The S25P has two expansion slots in the back of the chassis. There are four types of module available:

- Two types of stacking module: 12 Gbps (two ports) and 24 Gbps (one port)
- Two types of 10-Gigabit module: fiber (optical) and copper (10GBase-CX4)

The system supports interoperability of the modules, in any combination of slots, although connecting all four ports of two 12G stacking modules is not supported, nor is connecting one kind of stack port to anything other than the same kind of stack port. For the 10-Gigabit modules, the system numbers the ports 25 and 26 in the left-hand slot and 27 through 28 in the right-hand slot as you face the front of the switch. So, for clarity in the use of the CLI in port assignment, if you are only using one XFP or CX4 module, insert it in the left-most expansion slot.

To install a module, follow the steps below:

Step	Task
1.	If the switch is on, save the running config, if desired (and different from the startup configuration), with the command write memory. Then power off the switch by pulling its power cable. **Caution:** Removing a module from a running switch will crash and lock up the switch, requiring a power cycle. While you can insert a module into the switch without a problem, the module will not be usable until after a reboot.
2.	Use a #2 Phillips screwdriver to remove either the module faceplate or an existing module. Note that these slots, when used for 10G Ethernet ports, assign port-numbering from left to right as you face the front of the switch. So, for clarity in programming ports, you might favor using the left-most slot for the first 10G module. 
3.	Grasping the module faceplate, remove the module from its packaging and slide it into the slot until the module faceplate is flush with the switch.
4.	Secure the captive screws on either side of the module.
5.	The optical XFP 10-Gigabit module (Catalog # S50-01-10GE-2P) requires additional XFP transceiver inserts, which are not included in the module kit (see Installing XFP Transceivers (optional) on page 11 or the installation instructions that come with the transceiver). The ports in the copper CX4 module (Cat # S50-01-10GE-2C) do not require inserts. If you are installing a CX4 module, and you are connecting the ports with a cable substantially shorter or longer than 5m, use the **cx4-cable-length** command to set the signal strength. Use **cx4-cable-length long** for a longer cable, **cx4-cable-length short** for a shorter cable. See the System Management Commands chapter in the *SFTOS Command Reference* for details. **Note:** Take care not to connect CX4 ports to 12G stack ports in the S50V and S25P. The receptacles and cables are the same, but they are incompatible. CX4 ports are labeled as such; stack ports are not labeled. You can order several cable lengths of each type; they are not part of this kit. For details on enabling ports, see Enabling Ports on page 13 or the *SFTOS Configuration Guide*.

Attaching the S25P to the Rack

Warning: As with all electrical devices of this type, take all necessary safety precautions to prevent injury when installing the system. Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and its components.

Warning: For fan maintenance and proper ventilation, position the switch in an equipment rack (or cabinet) with a minimum of five inches (12.7 cm) of clearance around the side intake and exhaust vents.

Warning: The site where the switch is placed should be a dry, clean, well-ventilated, and temperature-controlled room, away from heat sources such as hot air vents or direct sunlight, and have an environmental temperature between 32° – 122°F (0° – 40°C).

The S25P is shipped with universal front-mounting brackets (rack ears) attached. The screws for attaching those ears to a standard 19-inch rack are in the bag that also contains the S-Series CD-ROM.

Position the S25P chassis in the rack. Secure the chassis with two screws through each bracket and onto the rack post.

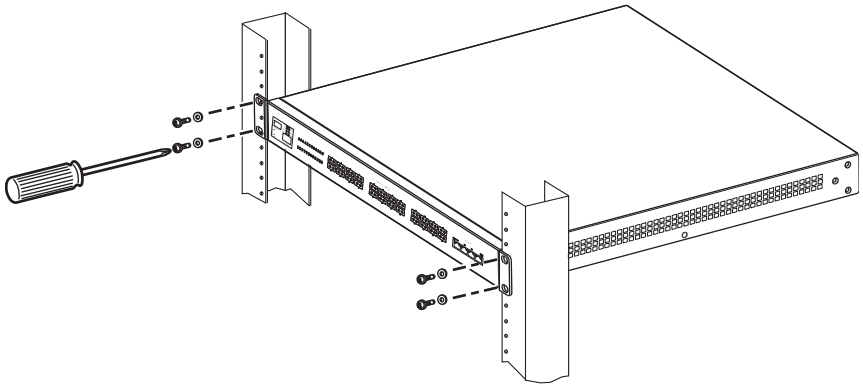


Figure 1 Front-mounting the S25P

Note: The front-mounting installation above is one of several installation options contained in the book *Installing the S25P System*. Other options include rear mounting, four-post mounting, and table-mounting.

Connecting Stacking Ports (optional)

You can connect up to eight switches (S25P and S50V) together through their stack ports to configure them to act as a unified system, called a stack.

Note: The original S50 model stacks only with other switches of that model.

The S25P contains two expansion slots in the rear, in either of which you can insert stacking modules. The S25P system includes two optional types of stacking module — a single-port 24G module and a two-port 12G module. You can put either type of module in either of the two slots in the rear of the S25P, but you cannot interconnect the two types, and Force10 does not support the use of all four ports of two 24G modules.

Use the optional stacking cables to connect the switches through the stack ports. One possible configuration is depicted below.

Note: Figure on page 9 shows a connection between the top and bottom switches, from Stack Port A on unit 1 to Stack Port B on unit 3. That connection completes a topology called a ring. That ring is not necessary, because the ports are bi-directional, but a ring provides redundancy in case of a failure of a stacking cable or port. If you use the single-port 24G modules, you can insert one in each expansion slot to accomplish the ring topology.
Note: These instructions use “Stack Port A” and “Stack Port B” for clarifying the connections, but the modules are not labeled.

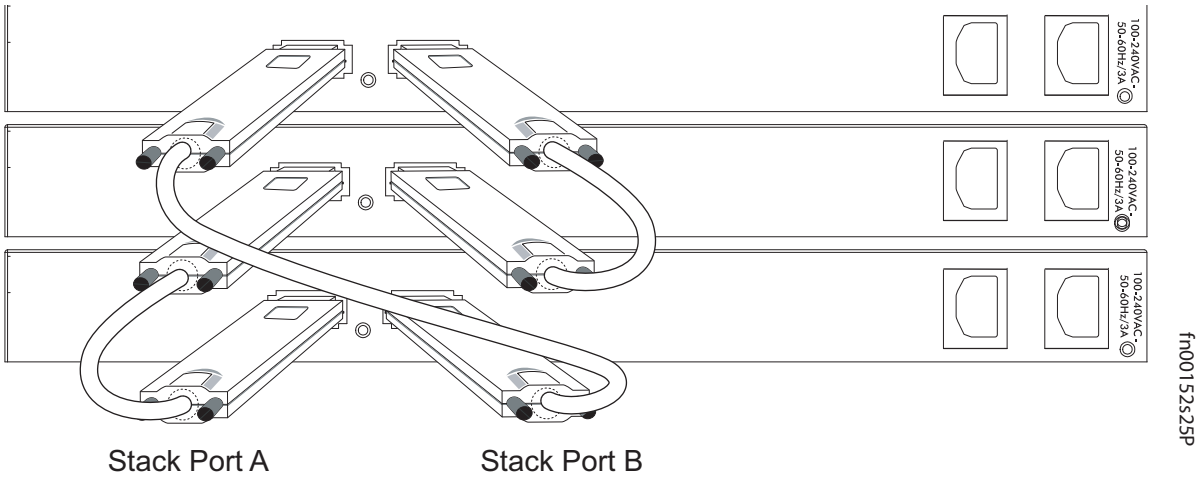


Figure 2 Connecting Stack Ports

Note: The connectors in Figure 2 are depicted with captive screws. Instead, the connectors used on S25P stack ports have latches, the same connectors as used for CX4 connections.

Supplying Power

Supply power to each S25P in a stack only after each switch is mounted and the stack ports are connected. There is no on/off switch, and the stack members partly determine the stack management unit from the order in which they come online (see above).

The S25P switch (catalog # S25-01-GE-24P) has two AC receptacles in the rear of the chassis (see Figure 2 on page 9). The system can use either power source independently or in combination, in active/backup mode. Connect the supplied AC power cord first to either receptacle of the S25P (on the right as you face the rear of the chassis) and then to the power source (see AC Power Requirements on page 32). Ensure that the cord is secure. If you connect both AC power supplies, ideally you would connect them to separate circuits.

S25P-DC

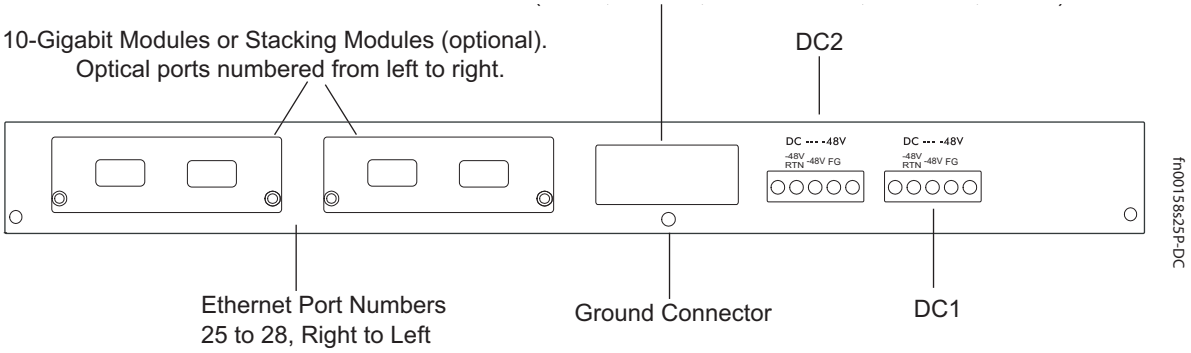


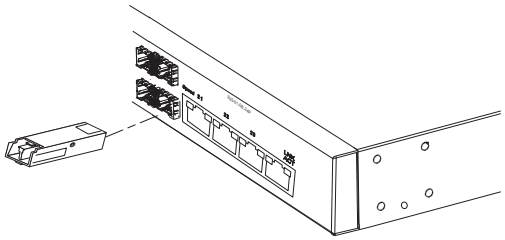
Figure 3 The S25P-DC Rear View

As shown above, the S25P-DC (catalog # S25-01-GE-24P-DC) has two DC terminal blocks on the right side. You can supply power to either one or both, in active/backup mode (no precedence for either). The terminal block on the left corresponds to the DC2 status LED on the front left of the switch; DC1 is on the right.

You must provide your own cables to connect to the power source. Cables must be sized for 11.5 A service at -48VDC input (per NEC in the United States. Internationally, follow local safety codes.) Before you make the cable connections, apply a coat of antioxidant paste to unplated metal contact surfaces. File unplated connectors, braided straps, and bus bars to a shiny finish.

1. Make sure that the remote power source (the circuit breaker panel) is in the OFF position.
2. Remove the safety cover from the DC terminal block.
3. Connect the grounding cable to the FG terminal first, then connect the opposite end to the appropriate grounding point at your site to ensure an adequate chassis ground.
4. Connect the -48 V and -48 V RTN (Return) cables to the switch terminals and then to the remote power sources, ideally on separate circuit breakers.
5. Replace the safety covers on the DC terminal blocks.
6. When connecting both terminal blocks, do not supply power until both are connected.

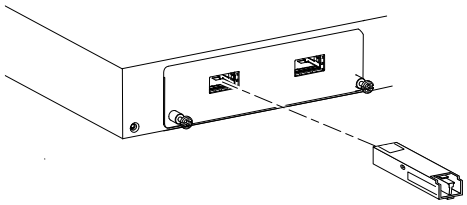
Installing SFP Transceivers (optional)

To install 1Gbps SFPs (Small Form-factor Pluggable optical transceivers) into the four SFP ports at the right front of the S25P: 1. Position the SFP so that the bail is closed and on top of the SFP. 2. Insert the SFP into the port until it gently snaps into place.		Note: When populated, the four SFP ports shown in the graphic automatically preempt the four copper ports labeled 21 through 24. In other words, while you use a particular optical port, you cannot use the equivalent copper port.

Note: For details on SFP and XFP optics supported by Force10, see http://www.force10networks.com/products/specifications.asp

Installing XFP Transceivers (optional)

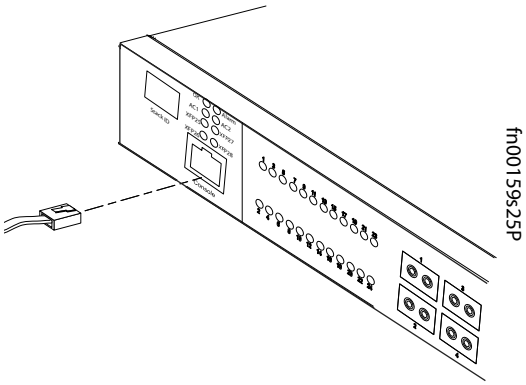
Warning: Do not look directly into any optical port. Failure to follow this warning could result in physical harm.

The two module slots on the back of the S25P both accept optional 10-Gigabit modules. To install an XFP transceiver into an XFP port (in the fiber optical version of the 10-Gigabit module): 1. Position the XFP so that the bail is closed and on top of the XFP. 2. Insert the XFP into the port until it gently snaps into place.	 fn00160s50V

Note: You can insert and remove optics without disabling the port or shutting down the system.

Connecting to the Console Port

Caution: Install a **straight-through RJ-45 copper cable** (a standard Ethernet cable) into the console port. This is different from many other implementations that require a crossover cable (or rollover cable). If connecting to a terminal server and using an Ethernet crossover cable, daisychain another crossover cable to effectively get a straight-through cable connection. Many console terminal servers use octopus cables that are crossover cables. As above, connect an additional crossover cable.

Connect the RJ-45/DB-9 adapter that is shipped with the S25P system to the RJ-45 cable. Console port pinout: Pin 1 = NC Pin 2 = NC Pin 3 = RXD Pin 4 = GND Pin 5 = GND Pin 6 = TXD Pin 7 = NC Pin 8 = NC		Set your initial console terminal settings to: • 9600 baud rate • no parity • 8 data bits • 1 stop bit • no flow control After establishing a connection, you can modify the settings to match at each end of the connection.

See the Getting Started chapter of the *SFTOS Configuration Guide* for other console port details, such as setting the console timeout and the baud rate.

Basic Software Configuration

This *S25P Quick Reference* contains a small subset of the information that is provided in the Getting Started chapter of the *SFTOS Configuration Guide*. That guide is available PDF format on the S-Series CD-ROM and on the Documents tab of the iSupport website.

This section discusses the following configuration topics for the S25P:

- Creating a User and Password on page 13
- Setting the Enable Password on page 13
- Enabling Ports on page 13
- Setting the Management IP Address on page 14
- Enabling Telnet to the Switch on page 14
- Managing a Stack of S-Series Switches on page 14
- Installing New Software on page 15
- Creating a Simple Configuration using VLANs and STP on page 15

Creating a User and Password

The S25P comes installed with one read/write user named “admin”, with no password. You can add that password, and also create up to five more read/write users with the **username** command in Global Config mode. The command edits the user name and password in one statement, as shown below. Usernames provide access to the S25P through both the CLI and the SFTOS Web User Interface (Web UI).

Note: Text boxes surrounded by oval lines, such as the following, are used throughout Force10 documentation to simulate the appearance of a terminal screen after logging in to the operating system of the switch through a console program. The hostname prompt, exemplified in the following example by “(Force10)”, is configurable.
Note: In this guide, bold text highlights the commands that you enter.

```
(Force10) >enable
(Force10) #config
(Force10) (Config)#username admin passwd apassword
User login name and password are set.
(Force10) (Config)#exit
(Force10) #exit
(Force10) >
```

Setting the Enable Password

The Privileged Exec password (commonly called the “enable” password), is not set when the switch starts the first time. To set the enable password, access the Privileged Exec mode (also called “enable mode”) and then the Global Config mode, as shown in the following example. Enter the command **enable passwd**, then press **Enter**.

At the prompts, enter the password that you want to use:

```
(Force10) >enable
(Force10) #enable passwd
Enter new password:*******
Confirm new password:*******
Password Changed!
(Force10) #exit
```

Enabling Ports

When the switch is first installed, all ports are disabled by default. To enable all ports, enter **no shutdown all** in Global Config mode, as shown here:

```
(Force10) >enable
(Force10) #config
(Force10) (Config)#no shutdown all
(Force10) (Config)#exit
```

Alternatively, you can use the **no shutdown** command at the specific interface level.

Setting the Management IP Address

Use the following the procedure to set up a management IP interface to the switch. You will need this to access the switch through Telnet, SSH, TFTP, or the SFTOS Web User Interface.

Step	Command Syntax	Command Mode	Purpose
1.	**show interface managementethernet**	User Exec or Privileged Exec	Display current management IP configuration.
2.	**interface managementethernet**	Global Config	Invoke the (Config-if-ma)# prompt.
3.	**ip address** *ipaddr subnetmask*	(Config-if-ma)# prompt	Set the IP address and subnet mask of the management interface.
4.	**management route default** *gateway*	Global Config	Set the IP gateway of the management interface.

Note: The management address is reachable from VLAN 1. All physical ports are, by default, members of VLAN 1, so the management address will be reachable from all enabled physical ports by default.

Enabling Telnet to the Switch

Access to the switch through a Telnet server is disabled by default. If you want to access the switch through an SSH client, you would leave Telnet disabled and set up the SSH connection. See "Enabling Secure Management with Secure Shell or Secure Sockets Layer" in the *SFTOS Configuration Guide*.

To enable Telnet access, first assign the management IP address (see Setting the Management IP Address on page 14), then execute the **ip telnet server enable** command in Global Config mode.

Managing a Stack of S-Series Switches

When you connect a set of previously unconfigured S-Series switches, and you follow the instructions in Connecting Stacking Ports (optional) on page 9, a startup algorithm automatically designates a unit to be the management unit. You do not need to configure anything else specific to stack management.

If, on the other hand, you are modifying a stack, you will need to follow the directions that are in the Stacking chapter of the *SFTOS Configuration Guide*.

If you need to upgrade the software in the stack, see the following section.

Installing New Software

As a convenience to purchasers of the SFTOS Layer 3 Package, the S25P comes with that software already installed. So, other than checking the iSupport website for upgrades, you do not need to download new code. The Layer 3 software package includes the Layer 2 package, so if you purchased just the Layer 2 package, your software license proscribes using the Layer 3 functionality. That is easy to do; simply do not execute the **routing** command (Global Config mode); the Layer 3 functionality will be unavailable.

If you need to upgrade the SFTOS software, and you want to download the software from a TFTP server, use the following command syntax:

copy tftp://*tftp_server_ip_address/path/filename* {**image1 | image2**}

For example: copy tftp://1.1.1.10/tftp/SFTOSdownload/SFTOS-S50-2.5.1.11.bin image2

In this example:

- 1.1.1.10 is the IP address of your TFTP server.
- tftp/SFTOSdownload/ is the path to the software.
- SFTOS-S50-2.5.1.6.bin is the software label.
- image2 is the name of the storage location on your switch.

The choice of **image1** or **image2** is based on the fact that SFTOS 2.5.1 introduces support for two software image locations on the switch. The software shipped on the switch is stored in the image1 location, so if you download new software to the image1 location, the next reload will boot up with that software. If you save the new software to the image2 location, as shown above, and you want to install that new software on the next reload, execute the command **boot system image2** before executing **reload**.

You can use variations of the **copy** command to download or upload files to and from the switch. For details on the command syntax, see the **copy** command in the *SFTOS Command Reference*. For more on managing software and configuration files, see "Managing Configuration and Software" in the Getting Started chapter of the *SFTOS Configuration Guide*. Also see "Upgrading Software in a Stack" in the Stacking chapter.

Creating a Simple Configuration using VLANs and STP

Note: As noted in Enabling Ports on page 13, all ports are disabled by default. Enable them with **no shutdown all** (Global Config mode), or individually with the **no shutdown** command on each port (Interface Config mode).

:The following is an example of using the command line interface (CLI) to create VLAN 55, adding both a tagged interface and an untagged interface to it (ports 5 and 6, respectively, in stack member unit 1): :

```
(Force10) (Config)#interface vlan 55
(Force10) (Conf-if-vl-55)#tagged 1/0/5
(Force10) (Conf-if-vl-55)#untagged 1/0/6
(Force10) (Conf-if-vl-55)#exit
(Force10) (Config)#no shutdown all
```

For more on using the CLI to create VLANs, see the VLANs chapters in the *SFTOS Command Reference* and *SFTOS Configuration Guide*.

Enabling Spanning Tree Protocol

Spanning Tree Protocol (STP) is off by default. First, you must enable STP globally. Next, enable STP on the desired ports. Using the CLI to enable STP, it is possible to enable spanning tree globally and on all the ports with just two commands — **spanning-tree** and **spanning-tree port mode all**. The following example also shows the use of the **show spanning-tree summary** command to verify the configuration:

```
(Force10) #configure
(Force10) (Config)#spanning-tree
(Force10) (Config)#spanning-tree port mode enable all
(Force10) (Config)#exit
(Force10) #show spanning-tree summary

Spanning Tree Adminmode.......... Enabled
Spanning Tree Version............. IEEE 802.1s
Configuration Name................ 00-01-E8-D5-A0-F7
Configuration Revision Level...... 0
Configuration Digest Key..........
0xac36177f50283cd4b83821d8ab26de62
Configuration Format Selector..... 0
No MST instances to display.
```

Verify the convergence with the **show spanning-tree interface** *interface* command:

```
(Force10) #show spanning-tree interface 1/0/1
Hello Time..................................... 0
Port Mode...................................... Enabled
Port Up Time Since Counters Last Cleared....... 0 day 0 hr 19 min 38 sec
STP BPDUs Transmitted.......................... 2
STP BPDUs Received............................. 593
RSTP BPDUs Transmitted......................... 0
RSTP BPDUs Received............................ 0
MSTP BPDUs Transmitted......................... 4
MSTP BPDUs Received............................ 0

(Force10) #write memory
![Your final step is to execute the write memory command to save the configuration.]!
```

Notable Differences between FTOS and SFTOS

This section describes the major differences in how SFTOS command usage on the S-Series differs from FTOS on the E-Series. Users familiar with FTOS will notice enough similarities in the SFTOS CLI environment on the S-Series that they can quickly learn the variations in syntax and usage.

Of course, there are more commands with more detailed options in FTOS than in SFTOS, because FTOS runs the E-Series switches, which are more complex than the S-Series line supported by SFTOS.

Interface Nomenclature

The major difference between SFTOS and FTOS is that commands that contain a parameter in the form *slot/port* in FTOS use a *unit/slot/port* parameter in SFTOS for both physical and logical interfaces.

For physical identifiers, the unit is the stack member number in an S-Series stack. For example, both FTOS and SFTOS have the **show interface** command, but the SFTOS equivalent of **show interface gigabitethernet 2/11** (slot 2, port 11 in FTOS) would be **show interface 1/0/11**, where 1/0/11 represents unit 1 in the stack, slot 0, port 11. If the port were in unit 2 of the S-Series stack, the command would be **show interface 2/0/11**.

Logical interface identifiers are automatically generated by SFTOS. They also use the unit/slot/port convention, but system unit numbers are always 0, slot numbers are sequential, starting at 1, and the interface numbers (in the third position) are also sequential, starting at 1 per slot.

Note: Starting with SFTOS 2.5.1, the integer IDs of LAGs (port channels) and VLANs that you assign to the interfaces when you configure them are the IDs used throughout the configuration; the system no longer assigns a logical ID in the unit/slot/port form.

Other CLI variations include:

- **Creating a static route**: The SFTOS command **ip route** supports only IP addresses for setting the next-hop router, while **ip route** in the FTOS also supports physical interfaces.
- **Setting the size of the logging buffer**: The FTOS command **logging buffered** has a parameter that enables you to set the size of the buffer, while SFTOS does not. Both FTOS and SFTOS invoke debug logging with the number 7 for the severity level parameter. The SFTOS command is **logging buffered 7**.
- **Displaying the MAC address table**: Both FTOS and SFTOS have the **show mac-address-table** command, but the SFTOS command **show mac-addr-table** provides more similar results to that FTOS command. The SFTOS syntax contains the *unit/slot/port* form cited above, for example, **show mac-addr-table interface 1/0/4**.
- **Displaying system information**: The FTOS command **show linecard** is similar to **show version** in SFTOS, which shows basic information, including the running software version and up time. Other similar commands in SFTOS are **show hardware** and **show sysinfo**, and **show tech-support** provides the results of a group of those similar commands.
- **service timestamps**: This FTOS command is not available in SFTOS. SFTOS sets timestamps automatically.
- **aaa authentication**: This FTOS command is available in SFTOS as **authentication**.

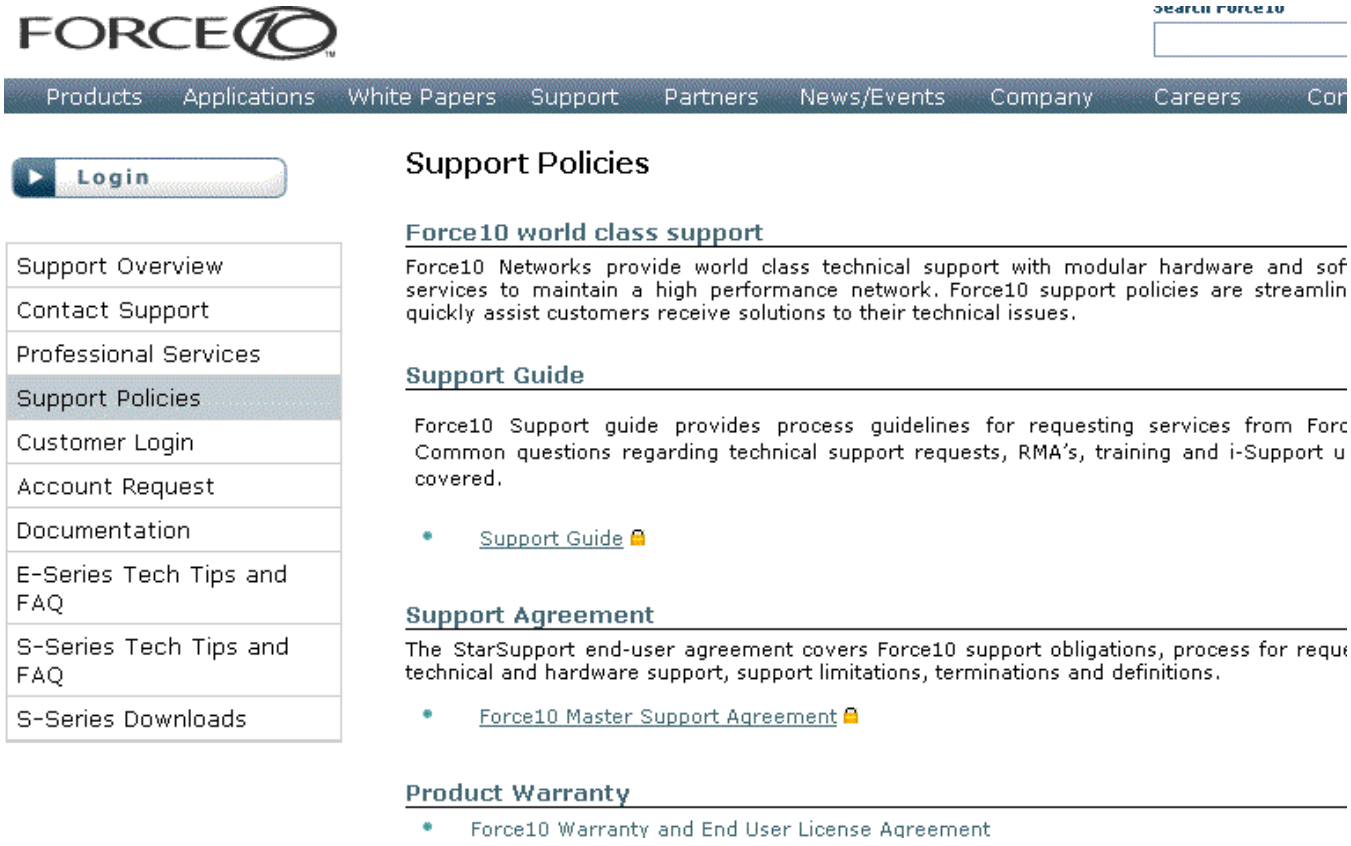
The iSupport Website

Access to some sections of the iSupport website do not require a password to access. However, if some section does require a password, you can request one at the iSupport website:

1. Click the **Support** link on the Force10 Networks home page: **http://www.force10networks.com**
2. Click the **Account Request** link.
3. Fill out the User Account Request form and click **Send**.
4. Click **Login**, and then enter the userid and password that you received by email.

The i-Support website (http://www.force10networks.com/support/) contains the following five tabs:

- **Home:** Summary of open cases, RMA management, and field notices (as shown below)
- **Service Request**: Case management
- **Software Center:** Software downloads, bug fixes, and bug tracking tool
- **Documents:** User documentation, FAQs, field notices, technical tips, and white papers
- **Support Programs:** Information on the suite of Force10 support and professional support services.



For more on using the iSupport website and accessing services, see the *Force10 Service and Support Guide*, available on the Home tab, as displayed above.

You can also contact the Force10 Technical Assistance Center (TAC) by email or phone. For details, click the **Contact Support** link on the Force10 **Support** page: **http://www.force10networks.com**